

without creating any functional interrelationship, and that descriptive material alone does not impart functionality either to the data as so structured, or to the computer.

The Applicant refers the Examiner to MPEP § 2106 (IV)(B)(1)(b), last paragraph,
5 which states in relevant part, “. . . [t]he presence of the claimed nonfunctional descriptive material is not necessarily determinative of nonstatutory subject matter. For example, a computer that recognizes a particular grouping of musical notes read from memory and upon recognizing that particular sequence, causes another defined series of notes to be played, defines a functional interrelationship among that data and the computing
10 processes performed when utilizing that data, and as such is statutory because it implements a statutory process.” MPEP § 2106 (IV)(B)(1)(b).

The Applicant notes that in the present invention, a functional interrelationship exists between the proteomic or genomic data and the computing process of generating
15 the graphical representations based upon the partitioning scheme and characteristic selected. More specifically, the proteomic and genomic data imparts functionality to the data by use of the computing process, which takes the data inputted by the user (including the proteomic and genomic data, a partitioning scheme and a characteristic), processes the entered data, then generates graphical representations of the size of each partition and
20 the distribution of the selected characteristic within that partition. This end product provides a practical application that allows a user to analyze the distribution of the selected characteristic in each selected partition, and easily find correlations in the genomic data. Rather than simply reorganizing the proteomic and genomic data, the present invention processes the inputted data with a selected partition and a selected
25 characteristic, then outputs a graphical representation of the distribution of the selected characteristic for each partition. Thus, the steps of processing the proteomic and genomic data using the selected partition scheme and selected characteristic creates a functional interrelationship between the data and the process of generating the graphical representations of the size of the partition scheme and the distribution of the
30 characteristic in the selected partition scheme.

As with the example provided in MPEP § 2106 (IV)(B)(1)(b), wherein a computer recognizes musical notes in a particular sequence, then outputs another series of notes, the present invention recognizes particular characteristics and partitions schemes within inputted sequences of proteomic and genomic data, then outputs graphical representations of the distribution of the selected characteristics within each partition scheme. Furthermore, the present invention provides for the processing of proteomic and genomic data with multiple different partitioning schemes and multiple different characteristics, thus providing for user analysis of the data to detect correlations between the different selected characteristics. Therefore, Applicant asserts that the requisite functional and structural interrelationship exists in the present invention to satisfy the requirements of 35 U.S.C. § 101.

Thus, Applicant believes the requisite functional interrelationship exists between the proteomic and genomic data and the process of calculating and then generating graphical representations of the size of each partition scheme selected and the distribution of the characteristic used as the basis of the selected partition scheme. Therefore, Applicant submits that Claims 1 – 120 are allowable under 35 U.S.C. § 101 because the claimed invention is directed to statutory subject matter.

The Examiner further rejected Claims 41 – 78 and 119 as being directed to a method comprises process performed within a computer system. The Examiner cited MPEP § 2106 (IV)(B)(2)(b) for the concept that the transformation of signals or data inside a computer merely manipulates concepts or converts one set of numbers into another without producing a useful, concrete, and tangible result.

The Applicant refers the Examiner to MPEP § 2106 (IV)(B)(2)(b)(ii), which covers the statutory subject matter for a computer-related process. The rule states that what the computer does to achieve a practical application determines whether the process is statutory, not how the computer performs the process. MPEP § 2106 (IV)(B)(2)(b)(ii). For a computer-related process to be statutory, “the claimed process must be limited to a

practical application of the abstract idea or mathematical algorithm in the technological arts.” MPEP § 2106 (IV)(B)(2)(b)(ii).

5 In the present invention, the computer receives a set of proteomic and genomic data, then processes this data with selected partition schemes and characteristics to generate a set of graphical representations of the sizes of each partition scheme and the distribution of the selected characteristic chosen by the user. These graphical representations form the practical application that is patentable subject matter under MPEP § 2106 (IV)(B)(2)(b)(ii). With these graphical representations, a user can view the
10 distribution of characteristics within several partition schemes, enabling the user to detect correlations between selected characteristics within the partition schemes. Additionally, the user can select various graphical representations to further analyze correlations among different partitions and with different characteristics.

15 Thus, Applicant believes that Claims 41 – 78 and 119 are patentable subject matter under MPEP § 2106 (IV)(B)(2)(b)(ii), as the Claims are limited to a practical application of the computer process described in the present invention. Instead of being directed to a process performed within a computer, the Claims refer to the practical application of generating graphical representations of the genomic and proteomic data to
20 aid a user in determining correlations of various characteristics within the selected data.

35 U.S.C. § 102 Rejections

25 The Examiner also rejected Claims 1 – 120 under 35 U.S.C. § 102(b) as being anticipated by Schutz et al. (1999).

In order to establish a prima facie case of anticipation, the Examiner must set forth an argument that provides (1) a single reference (2) that teaches or enables (3) each of the claimed elements (as arranged in the claim) (4) either expressly or inherently and
30 (5) as interpreted by one of ordinary skill in the art.

The Examiner stated that Claims 1 – 120 are anticipated by Schutz because Schutz discloses a computer apparatus, program product, and method for plotting proteomic and genomic data wherein the apparatus is a PC that runs Microsoft Excel computer product capable of receiving input (nucleic acid sequence) according to a partition scheme and output a representation of the partition scheme.

The Applicant notes that unlike the computer apparatus of Schutz which calculates a value in response to an inputted sequence of proteomic or genomic data, the present invention is concerned with plotting the proteomic and genomic data entered in various different partition schemes for comparison by the user. Unlike the present invention, Schutz does not disclose the plotting of proteomic or genomic data after processing by a computer system, but rather simply outputs the originally entered sequence for reference with the calculated melting point of the entered sequence. Thus, the present invention can be distinguished from Schutz because Schutz lacks the steps of using a computer system to process the proteomic and genomic data and display the processed data in multiple graphical representations.

The Applicant further notes that unlike the computer apparatus of Schutz which is concerned with computing only one piece of data for analysis (the melting point of a sequence of dsDNA), the present invention is concerned with the plotting of proteomic and genomic data for analysis via graphical representations of the characteristics of the selected partition schemes. More specifically, the present invention allows a user to adjust the views of the characteristics selected in order to detect correlations between the characteristics within the partition schemes, whereas Schutz only provides for the display of the originally inputted genomic or proteomic sequence and the calculated melting point corresponding to that sequence.

The Applicant also notes that unlike the computer apparatus of Schutz which uses a simple algorithm to calculate a single piece of data for analysis, the present invention provides for the processing of proteomic and genomic data using graphical representations that allow for analysis of several partitioning schemes and characteristics

as selected the user. While Schutz is simply a mathematical algorithm that uses the proteomic and genomic data to calculate a melting point of the particular oligonucleotide selected by the user, the present invention takes the proteomic and genomic data along with other factors and processes the data to present the user with multiple graphical representations of the selected data for comparison and analysis.

Additionally, Applicant notes that while Schutz allows only for the input of a single genomic or proteomic sequence for calculation, the present invention provides for the input of a genomic or proteomic sequence and the further specification of a particular partition scheme or schemes and a characteristic to be analyzed within many partition schemes. Schutz also limits its comparison ability to the singular melting point value produced and the sequence related thereto, while the present invention allows for the adjustment of the views of partition schemes to analyze several potential correlations between characteristics.

Applicant now believes that Schutz can be distinguished from the present invention for the reasons mentioned above, and should therefore overcome the § 102(b) rejection.

Concluding Remarks:

In view of the foregoing, Applicant believes the application is now in condition for allowance. Accordingly, early allowance and issuance of this application is respectfully requested. Should the Examiner have any questions regarding this response or need any additional information, please contact the undersigned at (310) 589-8158.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 50-2691. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed

and the petition fee due in connection therewith may be charged to deposit account no.
50-2691.

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Respectfully submitted,

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